

### Time use and time budget: improvements, future challenges and recommendations

Merz, Joachim

Veröffentlichungsversion / Published Version  
Arbeitspapier / working paper

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:  
SSG Sozialwissenschaften, USB Köln

#### Empfohlene Zitierung / Suggested Citation:

Merz, J. (2009). *Time use and time budget: improvements, future challenges and recommendations*. (RatSWD Working Paper Series, 85). Berlin: Rat für Sozial- und Wirtschaftsdaten (RatSWD). <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-420042>

#### Nutzungsbedingungen:

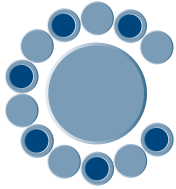
Dieser Text wird unter einer Deposit-Lizenz (Keine Weiterverbreitung - keine Bearbeitung) zur Verfügung gestellt. Gewährt wird ein nicht exklusives, nicht übertragbares, persönliches und beschränktes Recht auf Nutzung dieses Dokuments. Dieses Dokument ist ausschließlich für den persönlichen, nicht-kommerziellen Gebrauch bestimmt. Auf sämtlichen Kopien dieses Dokuments müssen alle Urheberrechtshinweise und sonstigen Hinweise auf gesetzlichen Schutz beibehalten werden. Sie dürfen dieses Dokument nicht in irgendeiner Weise abändern, noch dürfen Sie dieses Dokument für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen.

Mit der Verwendung dieses Dokuments erkennen Sie die Nutzungsbedingungen an.

#### Terms of use:

This document is made available under Deposit Licence (No Redistribution - no modifications). We grant a non-exclusive, non-transferable, individual and limited right to using this document. This document is solely intended for your personal, non-commercial use. All of the copies of this documents must retain all copyright information and other information regarding legal protection. You are not allowed to alter this document in any way, to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public.

By using this particular document, you accept the above-stated conditions of use.



German Council for Social  
and Economic Data (RatSWD)

[www.ratswd.de](http://www.ratswd.de)

# RatSWD

## *Working Paper Series*

Working Paper

No. 85

### Time Use and Time Budget

Improvements, Future Challenges and Recommendations

---

Joachim Merz

---

May 2009

---



Federal Ministry  
of Education  
and Research

## Working Paper Series of the Council for Social and Economic Data (RatSWD)

---

The *RatSWD Working Papers* series was launched at the end of 2007. Since 2009, the series has been publishing exclusively conceptual and historical works dealing with the organization of the German statistical infrastructure and research infrastructure in the social, behavioral, and economic sciences. Papers that have appeared in the series deal primarily with the organization of Germany's official statistical system, government agency research, and academic research infrastructure, as well as directly with the work of the RatSWD. Papers addressing the aforementioned topics in other countries as well as supranational aspects are particularly welcome.

*RatSWD Working Papers* are non-exclusive, which means that there is nothing to prevent you from publishing your work in another venue as well: all papers can and should also appear in professionally, institutionally, and locally specialized journals. The *RatSWD Working Papers* are not available in bookstores but can be ordered online through the RatSWD.

In order to make the series more accessible to readers not fluent in German, the English section of the *RatSWD Working Papers* website presents only those papers published in English, while the German section lists the complete contents of all issues in the series in chronological order.

Starting in 2009, some of the empirical research papers that originally appeared in the *RatSWD Working Papers* series will be published in the series *RatSWD Research Notes*.

The views expressed in the *RatSWD Working Papers* are exclusively the opinions of their authors and not those of the RatSWD.

The RatSWD Working Paper Series is edited by:

Chair of the RatSWD (2007/ 2008 Heike Solga; 2009 Gert G. Wagner)

Managing Director of the RatSWD (Denis Huschka)

# Time Use and Time Budget

## Improvements, Future Challenges and Recommendations<sup>1</sup>

**Joachim Merz**

*Leuphana University of Lüneburg (ffb[at]uni-lueneburg.de)*

### **Abstract**

“Time-use statistics offer a unique tool for exploring a wide range of policy concerns including social change; division of labour; allocation of time for household work; the estimation of the value of household production; transportation; leisure and recreation; pension plans; and health-care programmes, among others” (United Nations). This expertise will discuss recent developments, improvements and future challenges of time use and time budgets for policy and research with focus on international and in particular German national developments 2000+ in the sequel of the last German KVI commission report on the improvement of the information infrastructure between sciences and statistics.

Topics are: recent :international time use institutions, data archives and surveys; German time use data bases and their access, actual time use research fields and studies; time use and economic and social policy; new methods in time use survey sampling, future developments and European and international challenges. The conclusions recommend first of all a new German Time Use Survey GTUS 2011/12 and urgently calls for its financing and start of organisation. Specific GTUS improvements, SOEP time use issues, a brand new time use panel and a permanent establishment of the German research data centres (RDCs) are recommended in addition.

**Keywords:** Time use, time budget and time use surveys, time use data

**JEL classification:** C81, J2D1, I3, O15, O17

---

<sup>1</sup> Acknowledgement: I like to thank Dr. Markus Zwick and Heike Habla from the Federal Research Data Centre (Forschungsdatenzentrum (RDC) as well as Erlend Holz, Prof. Dr. Manfred Ehling and Dr. Daniel Vorgrimler (all from the Federal Statistical Office) and Dr. Kimberly Fisher, University of Oxford for their very helpful support.

## 1. Time Use and Time Budget – General Concern

**Time** is the compound dimension and encompassing resource of individual activities and living arrangements. Very generally speaking, any characteristic or information is only complete, when time is considered additional to the factual/socio-economic and geographic attributes. Quantitative/statistical based knowledge about the use of time for all conceivable activities from the labour market to the leisure world, thus, is of central importance not only for the individual but also for the economy, for governmental economic and social policy, and the society at large: „*Time-use statistics offer a unique tool for exploring a wide range of policy concerns including social change; division of labour; allocation of time for household work; the estimation of the value of household production; transportation; leisure and recreation; pension plans; and health-care programmes, among others*“. (United Nations Statistics Division, Allocation of Time and Time Use, <http://unstats.un.org/unsd/demographic/sconcerns/tuse/>).

**Time use surveys** collect information about activity sequences in time spells over a period from one day to a week. The core of a time use survey is the time use diary, which registers an individual's activity sequence. For each main activity in such a spell additional information are asked like a secondary activity, and information about “where” and “with whom” this activity was done. Additional to the diary information, a time use survey typically includes a questionnaire about socio-economic individual and household background variables. Sometimes specific information are included in the questionnaire about less frequent activities for a period longer than a day and/or item-specific questions like a seven-day work schedule proposed by the Harmonised European Time Use Study (HETUS, see EUROSTAT 2009, Rydenstam 1999).

**Time budgets** in a strong sense refer to activity specific aggregated time used over the entire day, say, like a money budget (Harms and Gershuny 2009, 1). However, the terminus time budget or time budget survey is often a synonym for the diary information itself or for the diary based complete time use survey (diaries plus socio-economic background); this is the interpretation we will follow. The overall advantage of a time budget is its more accurate time use measurement than by stylised data and the temporal location of an activity within a day. So the possibility to analyse the timing of activities (like working hours) and the sequence of an activity pattern is the extraordinary surplus compared to all other surveys asking for daily/weekly individual activities being in the labour market or in any field of daily

live.

**Time use research** analyses the individual's use of time. As Andrew Harvey, longstanding mentor of time use research states „Time use research is the study of how people use their time. Minimally, time use studies show what activities people do week to week or day to day. Maximally, they show what people are doing, where they are, who they are with, and how they feel from minute to minute“ ([www.stmarys.ca/partners/turp/pages/whatistimeuse.htm](http://www.stmarys.ca/partners/turp/pages/whatistimeuse.htm)).

#### *Time use general background/general literature*

Some of the early time use studies are the American study „How Working Men Spend Their Time“ (Bevans 1913) and the British studies „Round About a Pound a Week“ (Pemberton-Reeves 1913). A classical German time use study is the 1933 Marienthal-Study „Die Arbeitslosen von Marienthal - Ein soziographischer Versuch über die Wirkungen langandauernder Arbeitslosigkeit“ (Jahoda, Felix und Lazarsfeld 1960, reprint).

Since the beginning of the 20th century time use research has developed with respect to methodological as well as to substantive issues. Meanwhile there are a number of comprehensive studies about the concern and the international development of time use research: Kramer 2005 recently provides an historic overview, Harms and Gershuny 2009 focus on time budget and time use issues, Gershuny 2001 covers time use methods, Harvey 2007, 2004, 1999, Harvey et al. 1984, Gershuny 1995, Andorka 1987 or the volume on “Time Use – Research, Data and Policy (Merz and Ehling 1999) give a general and recent overview about the field.

Though within a time use diary the respondent is characterizing his/her activity in a time spell in his/her own words, only coded activities are available for a user. Thus, an appropriate coding for all thinkable research interests is a challenging task. However, there are international harmonising approaches, like the HETUS project (EUROSTAT 2009), the United Nations (Bediako and Vanek 1999) or alternative approaches (Hoffmann and Mata 1999).

Actual scientific articles of in-depth time use analyses, books and projects can be found in particular in the new electronic International Journal of Time Use Research ([www.eIJTUR.org](http://www.eIJTUR.org)). Andrew Harvey with his TURP project at the St. Mary's University of Halifax, Canada, provides a substantial bibliography of time use studies. The Centre for Time Use Research (CTUR) informs since 2007 about actual time use publications ([www.timeuse.org/information](http://www.timeuse.org/information)).

Our expertise will discuss improvements and future challenges of time use and time budget with focus on recent developments 2000+ since the last KVI commission report on the improvement of the information infrastructure between sciences and statistics<sup>2</sup>. The expertise is organized as follows: Chapter 2 sketches international important time use institutions, data archives and surveys. Chapter 3 describes time use data bases and their access in Germany. Time use research fields with international and national improvements, developments and studies are assembled in chapter 4. Time use in and for economic and social policy is the topic in chapter 5. New methods in time use survey sampling are presented in chapter 6. Chapter 7 examines future developments with European and international challenges. Chapter 8 provides the conclusions and recommendations.

## **2. Time Use International - Institutions, Data Archives and Surveys**

The following recent main time use institutions, data archives and international surveys build the improved international background in which the German time use activities are embedded.

### *2.1 International Time Use Institutions*

The International Association for Time Use Research ([www.IATUR.org](http://www.IATUR.org))

The International Association for Time Use Research (IATUR), the main international time use institution, established in 1970 provides a forum for people interested in any aspect of time use to meet each other and to exchange ideas. Association members work in over 40 countries. IATUR maintains the *electronic International Journal of Time Use Research (eIJTUR)*, and sponsors an *annual conference for time use researchers* to present their work. The Leuphana University of Lüneburg and our Research Institute on Professions (Forschungsinstitut Freie Berufe, FFB) will be the 2009 German conference location and host ([www.leuphana.de/ffb/iatur2009](http://www.leuphana.de/ffb/iatur2009)) after Washington (USA) and Sydney (Australia).

TURP: Time Use Research Program of the St. Mary's University, Halifax, Ca.

The purpose of TURP ([www.stmarys.ca/partners/turp/main.html](http://www.stmarys.ca/partners/turp/main.html)) with Prof. Andrew Harvey as director is to promote and facilitate the worldwide understanding, measurement, analysis and policy application of human time allocation data. Since 1985 TURP of the St. Mary's University at Halifax, Canada, provides a worldwide time use bibliography and is a pioneer in spatial time use research with its recent *Halifax Regional Space-Time Activity Research*

---

2 Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik 2001, Merz 2001.

(*STAR*) *Project*, a GPS-assisted household time use survey which started 2007.

UNSTATS, United Nations Statistics: Allocation of Time and Time Use

UNSTATS (<http://unstats.un.org/unsd/demographic/sconcerns/tuse/>) provides an international overview of the activities currently undertaken by the United Nations Statistics Division in the area of time-use statistics, as well as illustrative country experiences in designing and conducting time-use surveys.

RNTU: Research Network on Time Use

RNTU (<http://ffb.uni-lueneburg.de/timeuse> or <http://ffb.uni-lueneburg.de/rntu>), maintained by the University of Lüneburg Research Institute on Professions (FFB, Prof. Dr. Joachim Merz), Germany, supports internet based international time use research by information about data bases, methods and research results. Besides conference and institution information the RNTU research safe provides a relational database concerning the who, what, when and where within the time use research community.

eIJTUR: electronic International Journal of Time Use Research

The new scientific electronic International Journal of Time Use Research ([www.eIJTUR.org](http://www.eIJTUR.org)), maintained by IATUR and hosted by the University of Lüneburg Research Institute on Professions (FFB) established 2002, is a peer-reviewed journal which promotes theoretical and empirical studies to describe and explain individual time use and its economic and social policies. Additional to the articles time pieces present new research projects, new software and new books. eIJTUR, edited by Joachim Merz, Andrew Harvey and Jonathan Gershuny is free of charge and via internet worldwide accessible.

CTUR: Centre for Time Use Research

CTUR ([www.timeuse.org](http://www.timeuse.org)) offers a comprehensive archive with harmonised international time use data, MTUS. CTUR provides general time use information and is harmonising the American Heritage Time Use Studies (AHTUS). Time use research fields are: daily life and social change, gender and time allocation, time allocation among couples among others.

## 2.2 *International Time Use Data Archives*

The first international time budget study was the Multinational Time Budget Study coordinated in the 1960s by Alexander Szalai (1972). This project developed standardized



diaries and survey methods implemented by 12 countries<sup>3</sup> in 1965. Since then increasingly new time use/time budget surveys have been created. Recent main studies and archives 2000+ will be sketched in the following.

#### MTUS: Multinational Time Use Study

The most comprehensive and enduring data archives of international time use studies is the Multinational Time Use Study (MTUS, [www.timeuse.org/mtus](http://www.timeuse.org/mtus)) at the Oxford (earlier at Baath and Essex) University under the direction of Prof. Jonathan Gershuny (Gershuny, Jones und Gauthier 2000). MTUS is harmonising time use studies based on diaries from many countries since the 1960s. MTUS allows and makes it easy to analyse cross-sectional as well as longitudinal time use data by harmonising the different activity codes in overall new 41 unified codes as well by harmonised background variables ([www.timeuse.org/mtus/documentation/appendix](http://www.timeuse.org/mtus/documentation/appendix)). There are about 60 studies from about 26 countries worldwide available by MTUS.

#### MHES: Multinational Household Expenditures Study

MHES, the Multinational Household Expenditure Study, is hosted by Prof. Duncan Ironmonger at the University of Melbourne (Australia). MHES, build similar to MTUS, provides individual and household information about time use *and* expenditures which allows far reaching analyses about non-market, household production activities, as well as labour supply, consumption and individual well-being ([www.economics.unimelb.edu.au/SITE/household/MTUS1.shtml](http://www.economics.unimelb.edu.au/SITE/household/MTUS1.shtml)).

#### HETUS: Harmonised European Time Use Study

The European Union begun to support the harmonisation of time use surveys and statistics in Europe in the early 1990s (Rydenstam 1999). EUROSTAT together with National Statistical Offices developed then guidelines for Harmonised European Time Use Surveys (HETUS, EUROSTAT 2009)). The 2000 HETUS guidelines then have been the cornerstone of the European Time Use harmonisation process. The current documentation in 2009 ([ec.europa.eu/eurostat/](http://ec.europa.eu/eurostat/)) is an update subject to two principles: comparability with previous guidelines and simplification.

Based on the HETUS surveys, Statistics Finland and Statistics Sweden have developed the ***Harmonised Time Use Database and the HETUS table generating tool*** with a grant from EUROSTAT. Statistics Sweden has built the web-based tabulation instrument and maintains

---

3 USSR, USA, BRD, DDR, Bulgaria, Tschechoslovakia, Hungary, Poland, Jugoslavia, Belgium, France, Peru.

the database and the tool. The database includes information on main and secondary activity, location and "with whom" for each 10 minute slot.<sup>4</sup> The interactive, internet based, user friendly tool for producing user defined statistical tables is open to researchers and other interested users. Credentials are necessary to access the tool, Klas Rydenstam, Statistics Sweden (<https://www.testh2.scb.se/tus/> and [klas.rydenstam@scb.se](mailto:klas.rydenstam@scb.se)) has to be contacted (Rydenstam 2007, 118).

### CHAD: Consolidated Human Activity Database

CHAD here serves as an example for a specific individual time use data base dedicated to a certain substantive aim, here environmental protection. Consolidated Human Activity Database (CHAD), developed by the US Environmental Protection Agency (EPA), allows to analyse the impacts of environmental pollution by about 10 harmonised databases with frequency and duration of an activity (e.g. under pollution) with 140 codes and further daily and spatial (140 codes) information ([www.epa.gov/chadnet1/index.html](http://www.epa.gov/chadnet1/index.html)).

### 2.3 *International Time Use Surveys 2000+*

At the turn of the millennium around 20 European countries conducted time use surveys according to the harmonised HETUS guidelines prepared by EUROSTAT. Now, in 2009, more than 40 international time use surveys worldwide have been conducted since 2000+ which are assembled in Table 1.

Table 1: International Time Use Surveys 2000+

Country	Time Use Survey	Year	Country	Time Use Survey	Year
Argentina	Encuesta de Uso del Tiempo de Buenos Aires	2005	New Zealand	Time Use Study	2008-2009
Australia	Time Use Survey of New Mothers	2005-2006	Norway	Tidsnyttingsundersokelsen	2000-2001
Austria	Austrian Time Use Survey 2008-2009	2008-2009	Poland	Time Use Survey	2001
Belgium	Belgian Time Use Survey	2000, 2005	Portugal	Teachers Time	2001-2003
Brazil	Belo Horizonte Time Use Survey	2001	Republic of Kiribati	Time Use Survey Gilbert Island	2001-2002
Bulgaria	Time Use Survey	2001-2002	Republic of Korea	Time Use Survey	2000, 2005
Canada	General Social Survey, 19 Time Use	2000, 2005	Romania	National Time Use Study	2001
Denmark	The Time Use of Households	2001	Slovak Republic	Time Use Survey	2006
Estonia	Time Use Survey	1999-2000	Slovenia	Time Use Survey	2000-2001
European Union	Harmonised European Union Time Use Surveys	1999-2002	South Africa	Time Use in South Africa	2000
Finland	Time Use Survey: Everyday Life in Finland	2000	Spain	Encuesta de Empleo del Tiempo	2002-2003
Germany	German Time Use Study	2001-2002	Sweden	Time Use Survey	2000-2001

4 Presently the database includes micro data from fifteen European countries: Belgium, Bulgaria, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Norway, Poland, Slovenia, Spain, Sweden and the United Kingdom.

Guatemala	National Survey of Living Conditions	2002	Switzerland	Emploi du temps en Suisse	2001
Hungary	Time Use Survey	2000	Taiwan	National Time Use Survey	2004
Ireland	Adolescent Time Use and Well-Being	2007-2008	Thailand	National Time Use Survey	2000-2001
Ireland	Time Use in Ireland	2005	Turkey	Time Use Survey 2006	2006
Italy	National Time Use Survey	2002-2003	United Kingdom	Omnibus, One Day Diary Module	2001, 2005
Japan	Japanese Time Use Survey	2000, 01, 05	United Kingdom	The National Survey of Time Use	2000-2001
Mongoloia	Pilot Time Use Survey	2000	USA	ATUS: American Time Use Survey	2003-2007
Netherlands	Time Budget Survey of the SCP Office	2000			

Source: CTUR/MTUS harmonised data on <http://www.timeuse.org/information/studies/data> and own research

Detailed information about earlier harmonised international time use studies are made available by MTUS of the Centre of Time Use Research at Oxford University (<http://www.timeuse.org/information/studies/data>). A list of the MTUS harmonised time use activities is given by [www.timeuse.org/mtus/documentation/appendix](http://www.timeuse.org/mtus/documentation/appendix).

**Major developments** – besides new country single cross sectional time use surveys – since 2000+: *First:* the Harmonised European Time Use Surveys (HETUS) were a milestone in a multinational concerted sampling and activity coding of time use diary data. *Second:* The American Time Use Study (ATUS, [www.bls.gov/tus/](http://www.bls.gov/tus/)) now is a yearly time use survey with its specific pros of analysing short term changes. The new US time use engagement includes work on the ATUS ancestor: The American Heritage Time Use Study (AHTUS, 1965, 1975, 1989, 1992-94 and 1998/99) which is harmonised by the Centre for Time Use Research (CTUR) at Oxford University ([www.timeuse.org/ahtus](http://www.timeuse.org/ahtus)). The American Heritage Time Use Data (AHTUD) is the respective five studies time use data base which was assessed by a multinational expert group<sup>5</sup> providing a calibration (Merz and Stolze 2008), evaluation and recommendation for further time use surveys (Harvey 2006, <http://pna.yale.edu>). *Third:* some countries are following a quinquennial period of collecting new time use surveys (Canada, Japan, Korea).

Altogether, the almost exponential increase of new time use studies since 2000+ worldwide emphasizes the international recognized importance of time use data for research and policy.

### 3. Time Use Data in Germany - Data Bases and Data Access

The approved most important development in providing time use diary data is the nationwide

---

<sup>5</sup> Multinational project “Assessing American Heritage Time Use Studies” by Prof. Dr. Andrew Harvey, St. Mary’s University, Halifax, NS, Canada, Prof. Dr. Dr. Ignace Glorieux, Vrije Universiteit Brussel, Brussels, Belgium, Prof. Dr. Joachim Merz, University of Lüneburg, Germany, Klas Rydenstam, Statistics Sweden.

official German Time Use Survey GTUS 2001/02 (predecessor GTUS 1991/92). Summarized working hour information are provided by the German Micro Census. Average time use data stylised by a “normal day”<sup>6</sup> are part of the German Socio-Economic Panel. Some more topic specific, less sized surveys and firm side time use data have been collected since 2000+ in Germany, too.

#### German Time Use Survey 2001/02

The 2001/02 German Time Use Survey consists of about 5.400 households, about 37.700 diary days and about 270 activity codes classified by: household work and do-it-yourself, paid job/job seeking, voluntary and community work, qualification/education, physiological recreation, social life/contacts, use of media/leisure time activities, child care, taking care and attending people, times of getting ready and travel times including the means of transport. The GTUS design follows EUROSTAT's Guidelines on Harmonised European Time Use Surveys (HETUS). All household members aged 10 years and older were asked to fill out diaries based on 10-minute intervals on three days – two days during the week from Monday to Friday, one day on the weekend. Data were collected on primary and secondary activities, persons involved or present, the location and mode of transport. A wide range of household and individual data (socio-demographic/economic variables and other background variables) were collected in additional questionnaires.

The GTUS microdata themselves and information about the survey are available at the Research Data Centres of the Federal Statistical Office and the Statistical Offices of the Länder (RDC, [www.forschungsdatenzentrum.de](http://www.forschungsdatenzentrum.de)). In addition, the IZA in Bonn offers metadata about this and other surveys (<http://idsc.iza.org/metadata/>). A comprehensive *GTUS-Compass* about the broad range of GTUS 2001/02 information and its usage is provided by Statistisches Bundesamt 2006a.<sup>7</sup>

#### German Socio-Economic Panel Study (1984 – ongoing)

The German Socio-Economic Panel Study (GSOEP) about living in Germany annually collects a broad set of individual subjective and objective information of each household member 16 years and older since 1984 (<http://www.diw.de/soep>). GSOEP, hosted by the German Institute for Economic Research (DIW Berlin: <http://www.diw.de/english>), offers

---

6 The benefits and challenges of diary vs. stylised time use information are discussed e.g. by Robinson 1985, Niemi 1993 and Schulz and Grunow 2007.

7 Compass topics: Publications of government, ministries and research facilities, conferences, journals and other media; Master thesis, final diploma, doctoral dissertations; EUROSTAT: Harmonised European Time Use Study (HETUS); Federal Statistical Office publications; United Nations (UN); Journals about time use and related topics; Associations, conferences, data archives and research facilities about time use and related topics; General research facilities and data archives; Contact about the Time Use Surveys at the Federal Statistical Office of Germany.

only “typical/normal” work and non work day time use information for each of the following activities: paid work (including commuting and secondary occupational activities), housework and shopping, child care, do it yourself, education/learning, watching television, videos as well as hobbies and other leisure activities. In addition, GSOEP asks for less frequent activities how often they were done within different longer time periods.

The GSOEP advantage (among others) is its truly longitudinal character and a broad range of socio-economic variables for testing behavioural hypotheses. The disadvantage (besides the stylised information only) is to allow only full hours (no further minutes) information when collecting the data. A simple extension by minutes is strongly recommended for further GSOEP waves and international comparisons.

#### German Micro Census

The large scale German Micro Census (1% sample of the population) is focused around the labour market and asks for a variety of “typical/normal” working hours in-depth since 2005 ([www.destatis.de](http://www.destatis.de)) for actual as well as for a desired working hour arrangement.

#### Further Studies with time use information

Time use information by private firms, like Nielsen Marketing or the Gesellschaft für Konsumforschung (GfK) will be activated in our Time Use Research Fields section below.

Television and broadcast services (like ARD or ZDF) and other media firms developed an own large scale survey system about media use with many process based time use information. The situation and the suitability of diary based time use research for media use are recently analysed by Merz 2009.

In addition to these large scale time use data bases there are a number of less sized or topic specific studies like the “Berliner Längsschnitt Medien”, a project to analyse media use and school performance by the Kriminologisches Forschungsinstitut Niedersachsen (KFN, <http://www.kfn.de>) or e.g. a particular time use study on intra-family relations ([www.ifb.bayern.de/forschung/inapf-deu.html](http://www.ifb.bayern.de/forschung/inapf-deu.html)).

Altogether, though there are interesting time use surveys and information of private firms and other institutions in Germany, these surveys, however, are not available for other institutions or researchers, in general.

#### *Time Use Microdata Access / RDC*

While the GSOEP and its time use data were available for scientists from its very beginning on (1984) via the DIW in Berlin, official microdata are now provided since some years by

new research data centres for the public and the scientific community ([www.ratswd.de/engl/dat/RDC.html](http://www.ratswd.de/engl/dat/RDC.html)). The official German time use surveys GTUS 2001/02 and GTUS 1991/92 are provided and served by the Research Data Centres of the Federal Statistical Office and the Statistical Offices of the Länder (RDC, [www.forschungsdatenzentrum.de](http://www.forschungsdatenzentrum.de)). The RDC provides four different forms of access to selected microdata of official statistics: public-use-files, scientific-use-files, safe scientific workstations – data laboratories and controlled remote data processing.

They differ with regard to both the anonymity of the microdata which can be used and the form of data provision (<http://www.forschungsdatenzentrum.de/en/anonymisierung.asp>). There are possibilities for foreign institutions and scientists not subject to German law to access German official microdata.

**New developments 2000+ and the future:** the entire microdata access via the Research Data Centres is a new and very successful possibility in particular to work with official microdata like the scientific use files (SUF). However, scientific use files still are anonymized; a “final” run with the original data within the Federal Statistical Office is striking for many final results and publications. The new *onsite secured possibilities* (like at the DIW in Berlin for geo-coded SOEP data) is a promising road for an advanced access. Important for the future will be a *remote access to micro- and meta data* like to the Luxembourg Income Study (LIS).

The most important issue: the Federal Statistical Office’s RDC has to be established permanently for a continuing accredited necessary service!

#### **4. Time Use Research Fields –International and National Improvements, Developments and Studies 2000+**

Time use research fields in principle encompass the whole range of human activities. However, and in particular by the specific time use diary type of data, they focus and allow activity analyses incorporating attributes of the timing, the duration and the sequence of activities with all its impacts and causalities of daily life activities. Stylised time use data in addition give insights about a normal/averaged day and/or less frequent activities within a desired period in time.

With this perspective new and recent 2000+ international and national time use research fields are summarized in the following. They encompass substantive contributions from economic, sociology and other sciences as well methodological issues also on a multinational level and include all kinds of market and non-market activities with labour market aspects and

unpaid work in the formal and informal economy, gender aspects, family and leisure activities, environmental behaviour, social networks and social contacts, geography, travel, transport, child and elder care, new media and internet, adolescent and the youth, time poverty and stress and many more.

Though there are a multitude of studies behind each time use research field from 2000+, and certainly before<sup>8</sup>, in the assembling Table 2 only one international and one national reference will characterize the specific gain of time use information with regard to that substantive field of research. My comprehensive taxonomy of time use research fields tries to catch the recent international and national research activities and could use different sources.<sup>9</sup> To make a comparison more transparent between

Table 2: Time Use Research Fields 2000+ - International and National

Time Use Research Field	International		National	
	Reference	Time Use Data	Reference	Time Use Data
<b>Labour Market/ Paid Work</b>  <b>Timing, Fragmentation of Work/ Work-life balance/ Sequencing</b>	Hamermesh 2002/Fisher and Layte 2004/ Lesnard 2004	MTUS Version 5.0.1 (D), British TUS 2000-01 (D), HETUS 2003 (D)/ French TUS 1985-86, 1998-99 (D)/.	Merz and Böhm 2005; Merz and Burgert 2004; Merz, Böhm, Burgert 2004	GTUS 2001/02 (D)
<b>Unpaid work/ Nonmarket Activities/Household Production</b>	Deding and Lausten 2006, Harvey 2006, Ironmonger 2001	Danish TUS 2001 (D), American (Heritage) TUS (D), Australian TUS (D)	Schäfer 2004	GTUS 2001/02 (D)
<b>Gender Perspectives</b>	World's Women Report UNIFEM 2009	Multiple time use data worldwide (D/Q)	Cornelißen 2005, Sellach et al. 2004	GTUS 2001/02 (D)
<b>Division of Housework</b>	Anxo and Carlin 2004, Bonke and McIntosh 2005	French TUD 1999 (D)	Gille and Marbach 2004	GTUS 2001/02 (D)
<b>Child Care/ Day Care/ Care</b>	Joesch and Spiess 2006, Chalasani 2006	ECHP 1996 (Q)	Kahle 2004, Fendrich and Schillig 2005	GTUS 2001/02 (D)
<b>Family Interactions/ Parental Time and Leisure</b>	Anxo and Carlin 2004/ Guryan, J., Hurst, E. and M.S. Kearney 2008	French TUS 1999/ American TUS 2006	Bundesministerium für Familie, Senioren, Frauen und Jugend 2006	GTUS 2001/02 (D)
<b>Nutrition/Household Economics</b>	US Department of Agriculture	American TUS 2005, 2006	Gwodz et al. 2006	GTUS 2001/02 (D)
<b>Consumption/ Shopping</b>	Jacobson and Kooreman 2004	Netherlands SCP Survey 2000 (D/Q)	Merz, Hanglberger and Rucha 2009	GTUS 2001/02 (D)
<b>Education</b>	Guryan et al. 2007	ATUS 2005	Wilhelm and Wingerter 2004	GTUS 2001/02 (D)
<b>Leisure/ Culture/ Quality of Life</b>	Torres et al. 2007	European Quality of Life Survey (25 countries)	Statistisches Bundesamt 2008, Weick 2004	GTUS 2001/02 (D)
<b>Media use/ Play/ IT</b>	Deal 2008	Digital Games Survey 2006 (D/Q)	Merz 2009, Jäckel and Wollscheid 2004, Fritz and Klingler 2006, Kleinmann and Mößle 2008	GTUS 2000/01 (D), ARD/ZDF-Studie 2005 (Q), BL 2005-2010 (D/Q)
<b>Space/ Geography/ Environment</b>	Harvey 2009	STAR: GPS Time Use Survey 2008	Kramer 2005	GTUS 2001/02 (D)
<b>Mobility/ Transport/ Travel</b>	Keall and Baker 2008	Travel Survey New Zealand 2001 (D)	Kramer 2004	GTUS 2001/02 (D)
<b>Social Contacts/ Networks / Volunteering</b>	Bittman et al. 2005	Australian TUS 1997 (D), Australian SDAC 1998 (Q)	Merz and Osberg 2009, Gabriel et al. 2004	GTUS 2001/02 (D)

<sup>8</sup> See e.g. Merz and Ehling 1999.

<sup>9</sup> National: For GTUS 2001/02 based studies the excellent GTUS-Compass by the German Federal Statistical Office (Statistisches Bundesamt 2006) and further actual information provided by its author Erlend Holz; Research Project Summary and literature from the German Federal Statistical Office's Research Data Centre (RDC, [www.Forschungsdatenzentrum.de](http://www.Forschungsdatenzentrum.de)). International: CTUR publication list ([www.timeuse.org/information/publications/](http://www.timeuse.org/information/publications/); Information by the Research Network on Time Use Research (RNTU: <http://ffb.uni-lueneburg.de/timeuse/>); electronic International Journal of Time Use Research ([www.eIJTUR.org](http://www.eIJTUR.org)) and other Journals.

<b>Time Crunch/ Time Stress/ Harriedness</b>	Sullivan 2007, Bonke and Gerstoft 2007	Danish TUS 2001 (Q), Home OnLine 1998 (Q/D)	Gille and Marbach 2004	GTUS 2001/02 (D)
<b>Poverty/ Extended well-being/Inequality</b>	Akarro 2008, Folbre 2009	Time Use Study and Advanced Census Analysis in Tanzania 2002 (D)	Holz 2004, Ketttschau et al. 2004, Merz and Rathjen 2009 ISG 2004	GTUS 2001/02 (D)
<b>Special Populations</b>  <b>Children/ Adolescent, Youth/ Elderly, Retirement</b>	Pääkkönen 2008/ Mulligan, Schneider and Wolfe 2005/ Piekkola and Leijola 2006	Finnish TUS 1999/00 (Q)/ CPS 1992 (Q), NELS 1992, SDAC 1992/93 (ESM)/ MTUS: 1987, 1991, 1995, 1999 2000 (D)	Cornelißen and Blanke 2004, Engstler et al. 2004	GTUS 2001/02 (D)
<b>Economic Accounting/ Valuing/Sustainable Society</b>	Landefeld and Culla 2000, EUROSTAT 2003	Country time use study aggregated to Natinal Accounts	Schäfer 2004, Stahmer 2003, Stäglin 2003	GTUS 2001/02 (D). Time-Input-Output Tables
<b>New Methods</b>  <b>Visualization/ Sequence Analysis Timing/ Profiling/ Heterogeneity/ Entropy</b>	Michelson and Crouse 2004, Ellegard and Cooper 2004/ Wilson 2001/ Stewart 2006/ Gonzales-Chapela 2006/ .	GSS12 1998 (D), FAMITEL 2001 (D/Q), Swedish TUDPS 1996 (D)/ GSS 1998 (D)/ EPA TDS 1992-1994 (D), ATUS 2006 (Q)	Hufnagel 2008	GTUS 2001/02 (D)
<b>Methodology</b>  <b>Diary versus Questionnaire/ Representativity</b>	Kitterod and Lyngstadt 2005, Niemi 1993/	Norwegian TUS 2000/01 (D/Q)/	Schulz and Grunow 2007/ Merz and Stolze 2008	ifb TUS 2006/ AHTUD 1965-99

AHTUD: American Heritage Time Use Data, ATUS: American Time Use Survey, ARD/ZDF 2005: ARD/ZDF-Studie Massenkommunikation 2005 (Q), BL: Berliner Längsschnitt Medien, CPS: Current population survey, ECHP: European Community Household Panel, GSS: General Social Survey, HETUS: Harmonised European Time Use Studies, MTUS: Multinational Time Use Study, NELS: National Education Longitudinal Study, TUS: Time Use Survey, SDAC: Survey of Disability, Ageing and Carers, Sloan Study: Study of Youth and Social Development Wave 1, GTUS: German Time Use Survey  
Source: Own taxonomy based on various national and international information.

German and international research both, international and national information about references and time use data are provided The type of time use information (diary type (D) or questionnaire type (Q)) is marked, too

### *Major improvements and developments*

Altogether, the Table 2 overview shows a wide range of research fields with important economic and social concern. For instance, specific time use information provided by diaries allows particular **labour market analyses** which are not available by other labour market surveys: the sequencing, timing and fragmentation of daily working hour arrangements, which is important for new forms of labour contracts within labour market flexibility developments. **Unpaid work and nonmarket activities** count for the importance of the informal economy and emphasize women's economic importance and gender approaches in particular. The **entire leisure activities** with social networking and volunteer work, family interaction, media use, culture, sports and genuine leisure (to mention only a few) are important in many aspects for the understanding of economic, social individual and societal living conditions. Recently, in psychology time use studies (via experience sampling) are used, for example, for the study of affect regulation (Riedinger et al. 2009).

For Germany, the overview also shows: the recent German Time Use Study GTUS 2001/02 enabled a broad spectrum of in-depth activity research in a wide range of research fields. And, the national German time use research spectrum is well linked and embedded



within recent international time use research coping merely the full international range of research fields. However, as GTUS 2001/02 is only from the beginning of our century, this time use data base now is not up-to-date any more and urgently asks for a new current German time use diary survey.

Further information about the more than over 50 current substantive research projects reported to and served by the RDC and based on GTUS 2001/02 (with a lot more using GTUS 1991/92) emphasis the great importance of the German Time Use Survey for scientific as well as for administrative purposes (see the list of the RDC Research Projects in the Appendix Table A1).

In addition to the discussed spectrum of time use based research activities there are many further fields in private firms and administrative/governmental activities which ask for or gain from time use information.

#### *Private firms and time use information*

Besides all the working hour time use data within any private firm, private firms in the field of consumer surveying do collect item and time specific information. To mention only two important private firms: The Nielsen Consumer Panel survey with now of 300.000 households in 28 countries e.g. asks for consumption activities (which have to be scanned by the respondents via bar-codes) allows to analyse the individual consumer behaviour development over time for many years ([http://www.acnielsen.de/products/cps\\_homescan.shtml](http://www.acnielsen.de/products/cps_homescan.shtml)). The GfK (Gesellschaft für Konsumforschung) runs its ConsumerScope with explicit time use information; specific studies on gardening, media-use etc. deepen the activity specific time use information (<http://www.gfkps.com/scope/infopool/chartoftheweek/index.de.html>)

#### *Time use and downsizing bureaucracy by reducing administrative burdens*

The *Standard Cost Model* (SCM) of the Federal Statistical Office, a tool for downsizing bureaucracy, measures the administrative costs imposed on businesses and individuals by central government regulation. Time burden for certain activities required by administrative regulations is the indicator for individuals, and burden costs when priced for business. Specific SCM time use surveys and interviews provide the data. GTUS 2001/02 in addition is used for a further inspection of administrative regulation burdens. The German efforts are integrated in an international SCM network (<http://www.administrative-burdens.com/>).

Though the main focus of time use research is on individual behaviour, there are substantial longstanding international and national efforts to count for the contribution of the nonmarket production to the national product and national accounts.<sup>10</sup> Emphasis there is laid on valuing individual time use by various methods (market replacement costs with global or specialized substitutes, opportunity costs, self-evaluation (Chadeau 1985, Goldschmidt-Clermont 1993). Recent international nonmarket national accounts efforts are described by Landefeld and Culla 2000 and EUROSTAT 2003. An interesting new way to describe the macro situation of a society is the “Great Day”, an aggregated time use picture proposed by Gershuny 1999.

***Recent German national accounts by nonmarket satellite systems*** focus on time pattern in a Social Accounting Framework; see e.g. Stahmer 2003, Stahmer and Schaffer 2004, Stäglin and Schindtke 2003 for time input-output tables. Schäfer 2004 provides an estimate of a nonmarket production contribution for the German national accounts based on different valuing methods of individual time use data based on the GTUS 2001/02.

## **5. Economic and Social Policy and Time Use**

Targeted economic and social policy needs sound individual information of the population. Because of the encompassing range of individual activities time use data is a genuine information provider for almost any sound economic and social policy to support the daily temporal coordination of life. With the substantive background of our time use research field overview (Table 2), only some main policy aspects and new activities – of international importance but with German references – which gain in particular from individual time use information should be sketched:

- **Family and Time Use Policy:** for almost all activities considered in the recent Seventh Family Report of the Bundesministerium für Familie, Senioren, Frauen und Jugend 2006 with time policy for child care, child raising allowances, balancing family and work, education and other aspects of individual living conditions ([www.bmfsfj.de](http://www.bmfsfj.de)).
- **Commuting, Traffic, Mobility and Time Use Policy:** Increasing interest in individual traffic time aspects of working and leisure activities (see Kramer 2005)
- **Bureaucracy Downsizing** and time use: reducing administrative costs and time

---

<sup>10</sup> Based on Nordhaus' and Tobin's 70s critique on the restrictions of a pure market national product.

burden imposed on businesses and individuals (see the discussed SCM project ([www.administrative-burdens.com](http://www.administrative-burdens.com))).

- **Poverty and Time Use Policy:** see the expertises for the three German Federal Richness and Poverty Reports (Armuts- und Reichtumsberichte der Bundesregierung, Bundesministerium für Arbeit und Soziales 2008, in particular: ISG 2004, Kettschau et al. 2004)
- **Working Hours/Labour Market Flexibility and Time Use Policy:** Setting administrative general regulations on working hours and working conditions with particular daily working time regulations.
- **Time Policy in urban and rural areas:** To support the temporal coordination of public services and the private and firm sector.

The mentioned Time Use Compass by the Federal Statistical Office 2006a provides a further range of time use information used by the German administration for economic and social policy.

**New and future time use policy developments:** The temporal aspect regarding family affairs and working hour arrangements is a longstanding policy focus. Time use policy interests are new with regard to urban and rural temporal coordination of daily life (see the time policy project for the metropolitan area Hamburg (Mückenberger 2008) and the new time policy of European wide activities (Garhammer 2008). See also the activities of the „Deutsche Gesellschaft für Zeitpolitik e.V. (DGfZP)“ ([www.zeitpolitik.de](http://www.zeitpolitik.de)).

## 6. New Methods in Time Use Survey Sampling

All the substantive time use approaches and research fields are based on the following instruments and methods:

- **Direct time use questions (stylised approach) about number of times to participate,** or the amount of time denoted for a certain activity in a typical day; either time constrained (must cover a defined time period) or time unconstrained.
- **Activity lists,** typically selective rather than exhaustive mostly time-unconstrained, activity matrix: time-constrained.
- **Beeper,** call for information randomly and/or experienced sampled over a period (day) for actual subjective, context sensitive information.
- **Time use diary,** exhaustive, all activities and patterns of associations between people,

location, allows sequence analyses; highly recommended.

Time use research uses all kind of time use data, but the diary is the preferred method of sampling followed by stylised data. Both have benefits and challenges: diaries allow the inspection of the activity timing in a day, stylised data capture less frequent information and disregard the randomness of a certain day situation, to mention only the main issues (see Harvey 1999 for more).

There are some beeper data based results, like those of the ISR-Michigan group, but beeper data is not the dominantly used sampling instrument. However, experience sampling, by a beeper or another instrument, which is collecting context sensitive data by a self-reported momentary experience, by random or by some scheme over a day, say, is of growing use at least in psychological investigations (see the council expertise by Riedinger 2009).

Within this methodological frame, since 2000+ (roughly speaking) many new sampling tools connected with the growth of handheld devices and mobile phones have been developed (see the conference volume about new sampling technologies with focus on time use surveying (Ehling and Merz 2002). Many new sampling instruments, mainly developed to collect individual working hour information, may be classified – according to the taxonomy of Merz 2009 – by three principles: Come and Go, Project Precise and Task Precise. Come and Go measures the total daily working time (when, and how long). Project Precise measures the time information for a certain project (when, and how long). Task Precise might measure a certain (sub) task of a project. Table 3 provides examples of new time use sampling devices for each of these principles.

Table 3: New time use sampling technologies by surveying principles

<p>Come and Go</p> <p>PZE-Master [Working hour per terminal] <a href="http://www.zeit-reporter.de/article_info.php?articles_id=154">www.zeit-reporter.de/article_info.php?articles_id=154</a></p> <p>NovaCHRON [Workers time per web client] <a href="http://www.novachron-zeiterfassung.de/personalzeiterfassung.php">http://www.novachron-zeiterfassung.de/personalzeiterfassung.php</a></p> <p>diTime [Working hours per web-client] <a href="http://www.disoft.de/index.html">http://www.disoft.de/index.html</a> (Link muss im Dok. Geändert werden)</p> <p>timeCard [Working hours per chipcard/token] <a href="http://www.easy-technology.de/software/timecard/">www.easy-technology.de/software/timecard/</a></p> <p>Micades [Mobile per barcodescanner and GPRS/GSM] <a href="http://www.mobile-zeiterfassung.info/Fahrzeug.html">www.mobile-zeiterfassung.info/Fahrzeug.html</a></p> <p>MOBILDAT [Mobile per software] <a href="http://www.mobile-zeiterfassung.info/Fahrzeug.html">www.mobile-zeiterfassung.info/Fahrzeug.html</a></p> <p>Webalizer [Media/IT use per software] <a href="http://www.tobias-schwarz.net/webalizer_gui.html">www.tobias-schwarz.net/webalizer_gui.html</a></p> <p>Web-Zählpixel [Internet use per plugin/software] <a href="http://www.ivw.de">www.ivw.de</a></p> <p>User tracking [Internet use per cookies/software] <a href="http://www.agof.de/">www.agof.de/</a></p> <p>Project Precise</p> <p>MobilZeit SERVICE [Working hours per terminal] <a href="http://www.mobile-zeiterfassung.info/Fahrzeug.html">http://www.mobile-zeiterfassung.info/Fahrzeug.html</a></p> <p>TimeLog Project [Working hours per software] <a href="http://www.timelog.de/produkte/zeiterfassung.html">http://www.timelog.de/produkte/zeiterfassung.html</a></p> <p>TIM / TIM Mobile [Mobile per cell phone (GPRS/GSM ) and software] <a href="http://www.pressebox.de/pressemeldungen/echtzeit-zeitmanagement/boxid-108393.html">www.pressebox.de/pressemeldungen/echtzeit-zeitmanagement/boxid-108393.html</a></p> <p>Task Precise</p> <p>Zeittagebücher [per diary]</p> <p>Time-Soft [Working Hours per web-client] <a href="http://www.lewald.com">www.lewald.com</a></p> <p>Micro-Kiosk-System [Working Hours per terminal / PDA] <a href="http://www.softguide.de/prog_g/pg_2252.htm">www.softguide.de/prog_g/pg_2252.htm</a></p> <p>diTime [per Barcodescanner] <a href="http://www.disoft.de/index.htm">http://www.disoft.de/index.htm</a></p> <p>SMS-Methode [per cell phone and software]</p> <p>Mobile Zeiterfassung [per cell phone and software] <a href="http://www.virtic.com/?u=mobile_zeiterfassung">http://www.virtic.com/?u=mobile_zeiterfassung</a></p> <p>Halifax Regional Space-Time Activity Research (Star) Project [activity per cell phone (GPS) and diary] <a href="http://www.stmarys.ca/partners/turp/pages/projects/STAR/STAR_Main.htm">http://www.stmarys.ca/partners/turp/pages/projects/STAR/STAR_Main.htm</a></p>
--

For a discussion of the benefits and challenges of these new time use information sampling instruments see Merz 2009. They certainly have to be considered and tested before used for a next German Time Use Survey.

## 7. Future Developments: European and International Challenges

The worldwide financial and economic crisis accentuates the importance of an effective use of scarce resources. Since time use surveys encompass many (or all) individual activities incorporating temporal information, they are a very efficient “in one hand” tool with scarce resources to provide a broad scope of detailed individual data in a household context for a multitude of substantive interests. So, it could be expected that this crisis is even in favour of new time use surveys, however after convincing the policy makers of its evident usability.

In **Europe**, great efforts have been invested and still have to be invested to get a full HETUS every 10 years (as in Norway among other countries for decades). After about 20 new time use surveys at the beginning of the millennium 2000/2002 the next European Harmonised Time Use Study (HETUS) 2010-12 will be a cornerstone not only in national surveying and research but also for the European community development as a whole.

In the UK, light diaries in multiple intervening years between the ten years full scale surveys (Japan and Korea have 5 years) are discussed. As to the IATUR secretary Dr. Kimberly Fisher, there are a growing number of diary surveys on specific topics like on children linked to longitudinal data, notably the Child Development Supplement of the PSID (<http://psidonline.isr.umich.edu/CDS/>) and the “Growing Up Longitudinal Study of Australian Children” ([www.aiifs.gov.au/growingup/](http://www.aiifs.gov.au/growingup/)); another way to achieve individual time use data.

**International**, new countries and new time use surveys are worldwide on the agenda. A new UN-sponsored series of studies in developing countries is discussed. Based on the experiences and the efforts of the annual American Time Use Studies the international time use community will succeed in more frequent cross-sectional time use surveys. A comprehensive survey by the Federal Statistical Office about **Time Use Survey – National Plans for the next wave of surveys 2008-2010 for 32 countries** is given in the Appendix 2.

Periodical cross sectional time use surveys with intervals of 5 or 10 years will be very important. An annual time use panel of repeatedly asked individuals/households with all its

longitudinal information is on the international agenda. The panel option will be an enormous step forward in time use research providing among others specific event driven micro information for actual and targeted policy and research. New electronic devices allow more precise and at the same time less expensive time use data sampling. Future developments and challenges for the German time use survey situation will be outlined in our conclusions and recommendations.

## **8. Conclusions and Recommendations**

This expertise about the international and national recent time use situation, improvements and future developments has shown: Time use surveys – with time as the comprehensive dimension of any individual activity – allows new insights into the all day living activities incorporating the timing and the sequence of events. The central time diary methodology cues respondents to walk through the sequence of events in a given day, and has significant advantages in ensuring the completeness and consistency of responses. Time use diaries thus support the understanding of causality and the interdependence of all the market and nonmarket activities and their individual synchronization. The disadvantage is a high cost of administration, which mandates relatively few days observed per respondent and the possibility that a survey will miss low frequency events. Therefore, additional summary questions about the “work week” (HETUS) were already added in GTUS 2001/02 and in some other time use surveys.

With the background of the growing experience in the field of the successful time use survey methodology, the following recommendations, in particular for Germany, are given. They will support research and targeted policy with more advanced substantive as well as methodological investigations on modelling individual and household behaviour at the micro level and on developing new sound national accounts data at the macro level:

**Recommendation 1a:** A next official German Time Use Survey GTUS 2011/12 should unconditionally be conducted nationwide by the Federal Statistical Office. The financing for GTUS 2011/12 is not yet assured and has to be organized as soon as possible. The next German TUS has to be embedded again in the European Harmonised Time Use Surveys (HETUS, EUROSTAT 2009). Then Germany, at least concerted within the European time use efforts, can follow a ten years interval (with GTUS 1991/92, GTUS 2001/02) of precious time use information with socio-economic background for targeted policy and research.

**Recommendation 1b:** GTUS 2011/12: New methods in sampling time diaries based on

mobile devices, including beeper/experience sampling methods for even more context sensitive questions should be incorporated in the next GTUS after a proper pilot study. This allows to follow three objectives: first, to achieve more context sensitive data; second: reduce the burden of filling out a traditional diary booklet; third, will reduce overall expenses. The sampling procedure should use mixed mode data collection (internet, (cell) phone, mail, pre-coded diaries ...) and the advantages of the Access Panel (Körner et al. 2008) with voluntary information of the Federal Statistical Office.

**Recommendation 1c:** GTUS 2011/12: The single activity spell with its “where” and “with whom” attributes should be extended by expenditure information. This would provide new data about activity money efforts and intensity for all concerned activity fields (transport, shopping, etc.)<sup>11</sup> A suitable way has to be found to characterize a second or third job in a day’s activity spell.

**Recommendation 1d:** GTUS 2011/12: The time use diary information should be extended by questions concerning less frequent activities. First, by information about the “work week” following the recent HETUS recommendation (EUROSTAT 2009, Guidelines Annex VI). Second, by information about a longer period than a day (different week diaries, frequencies ...). Third, by information about a “typical/normal” period (day, week, month).

**Recommendation 1e:** GTUS 2011/12: The time use diary supplementary information should be extended by more objective background individual and household questions and questions about the living environment. The supplementary data should encompass information about the income situation from labour market activities (occupational status, wage and detailed income (including unemployment benefits ...) or from other income sources (capital income, further third party payments etc.). The environment information should encompass external child care possibilities and external living conditions (residence environment, exposure to environmental risks, and social life participation (social networks, social “inclusion”)).

**Recommendation 1f:** GTUS 2011/12: The time use diary supplementary information should be extended by subjective information about satisfaction (of life in general and other items in addition to time type and stress information) and health (subjective and objective). In addition the “Big Five” personal characteristics’ items<sup>12</sup> should be added to approximately measure unobserved heterogeneity (for instance). All this subjective data will allow to value and to qualify the time use information.

---

<sup>11</sup> E.g. with brackets for a sequence of equal activity spells.

<sup>12</sup> See for a short Big Five Inventory the SOEP version of Big Five (Schupp and Gerlitz 2008).

**Recommendation 1g:** GTUS 2011/12: The time use diary supplementary information should be closely adjusted and harmonised with the respective socio-economic questions of the German Socio-economic Panel (SOEP) to allow high quality merged new data sets.

**Recommendation 2:** A brand new annual Time Use Survey Panel should be started to answer the important longitudinal questions. A TUS-Panel – e.g. in the sequel of the next GTUS 2011/12 – will allow inspections of individual changing time uses and time use profiles in changing environments with extended causality and sequential event analyses. The TUS Panel thus has a different focus than the GSOEP.

**Recommendation 3:** The German Socio-Economic Panel should continue to ask for “typical day” and less frequent time use information to allow first, continuing existing longitudinal analyses, and second, to use the enormous socio-economic background labour market and further information of the GSOEP. GSOEP should not only ask for full hours but should allow minutes’ information as well.

**Recommendation 4:** The Research Data Centre (RCD) of the Federal Statistical Office should be put forward to a permanent basis in general and in particular for the time use data service and new time use data developing. The new onsite secured data access possibilities should be further developed. In particular, the remote access to micro- and meta data for a fast and secured access should be expanded.

**Recommendation 5:** In general, the Council for Social and Research Data should actively support and strengthen all activities to have a new GTUS 2011/12 be financed and organized. Because a time use survey provides such a multitude of substantive answers for policy and research “in one hand”, is harmonised now within Europe, and offers an efficient use of scarce resources, the next GTUS 2011/12 should be promoted eminently and without fail.



## Appendix A1: Current Registered RDC GTUS 2001/02 Research Projects

No.	Research Project - RDC Registered and Based on GTUS 2001/02 (March 2009)
1	Arbeitstitel: Haushalt: Haushalt: Kleine Fabrik oder gender factory
2	Zeitverwendung von Arbeitslosen und Vollzeitwerbstätigen. Eine vergleichende Analyse mit den Zeitbudgetdaten des Statistischen Bundesamtes von 2002.
3	Inklusionsprofile
4	Zeitverwendung in Haushalten
5	FrauenDatenReport 2005
6	Feiertage, freizeit und Soziales Kapital
7	Soziale Netzwerke und Hilfebeziehungen im unteren Einkommensbereich
8	Consumption and Time Allocation
9	Female labor market supply and home work in Germany
10	Bayerischer Familienreport 2006 - Schwerpunkt "Väter in Deutschland"
11	Kooperative Demokratie - Kritik der Arbeit und der Arbeitslosigkeit
12	1. Erwerbsverhalten und Home Production / 2. Zeitverwendung im Alter
13	Der soziale Dienstleistungsbereich als Chance für eine höhere Arbeitsmarktintegration und Professionalisierung weiblicher Erwerbskategorieen.
14	Zeitverwendung und Work-Life-Balance in Großbritannien und Deutschland
15	Das Arbeitsangebotsverhalten von Frauen in Deutschland
16	A. Mobilitäts- und Freizeitverhalten von Kindern und Jugendlichen B. Verbesserung der Methoden zur Prognose der KFZ-Bemessungsverkehrsstärken
17	Zeitverwendung und soziale Schichten
18	Klartext reden oder Farbe bekennen: Der Einfluss von Sprachkenntnissen und Aussehen auf gesellschaftliche Integration von Migranten in Deutschland
19	Der Einfluss von Kindern auf Zeitallokation von Haushalten
20	Effekt von Zeitverwendung auf die Ausbildung von nicht-kognitiven Fähigkeiten
21	Arbeitszeit & Zeitbudgetanalysen - Analyse täglicher Arbeitszeiten und Nachfragearrangements
22	Soziale Ungleichheit und Prävention
23	Das Konzept der Europäischen Sozioökonomischen Klassifikation und seine Anwendung auf die in der Zeitbudgeterhebung 2001/02 befragten Haushalte
24	Renewability
25	Substitutability of Partner's Productive Activities
26	Einkommensabhängiges Freizeitverhalten unter älteren Menschen
27	Zeit und soziale Ungleichheit. Die schichtspezifische Strukturierung sozialer Zeit - unter besonderer Beobachtung von Geschlecht und Generation
28	Schulz-Borck/Hofmann: Schadenersatz bei Ausfall von Hausfrauen und Müttern im Haushalt - mit Berechnungstabellen, 6. Aufl.- Karlsruhe: VVW 2000, ISBN 3-58487-89487-894-8
29	"Integration of Rebound Effects into Life-Cycle Assessment" (finanziert durch BFE und Nationalfonds)
30	Ruhestandsmigration in Deutschland
31	Assisted Living - Technisch unterstütztes Wohnen im Alter, Teilprojekt: Sozialwissenschaftliche Begleitforschung
32	Sozioökonomische Berichterstattung (soeb.de)
33	"Einkommen und Freizeit - Eine empirische Analyse des Freizeitverhaltens älterer Menschen mit Daten der Zeitbudgeterhebung des Statistischen Bundesamtes"
34	"Einkommen und Freizeit - Eine empirische Analyse des Freizeitverhaltens älterer Menschen mit Daten der Zeitbudgeterhebung des Statistischen Bundesamtes"
35	Ökonomische Analyse der Zeitverwendung für Ernährung
36	Integrierter Survey
37	International Evidence on housework and market work by husbands and wives
38	Entwicklungstendenzen im Online-Printmedienbereich in Deutschland - Arbeitsmarktstatistische und Arbeitsorganisatorische Analyse der Strukturveränderungen durch das Internet für Journalisten, 1990 - Gegenwart
39	Erstellung von Tabellen für das Seminar zur Wirtschaftslehre des Haushalts, in dem Studierende den Zeitaufwand für Kinder in den unterschiedlichen Haushaltstypen vergleichen sollen
40	Stochastische Modellierung von Nutzerverhalten in Wohngebäuden
41	A cross-cultural analysis of overreporting of socially desirable behavior
42	Bezogenes Verkehrsverhalten von Beschäftigten im sekundären und tertiären Sektor
43	Potentiale der Zeitbudgeterhebung 2001/02 Eine Bestandsaufnahme anhand der Zeitverwendung "Jüngerer Alter"
44	Berichtete und tatsächliche Kirchgangshäufigkeit in Ost- und Westdeutschland
45	Comparative Study on the Double Burden of Working Parents; Gender Differences in Time Poverty
46	Zeitverwendung von Arbeitslosen für Arbeitssuche
47	Soziale Netzwerke und Hilfebeziehungen im unteren Einkommensbereich
48	Zeitbudgeterhebungen - Methodik und Anwendungen
49	Analyse der Verschiebungen zwischen Wegezeiten und Zeiten für andere Aktivitäten in Abhängigkeit von der Raumstruktur
50	PACT (Pathways for carbon transitions)
51	Der zweite demographische Übergang

Source: Federal Statistical Office, Research Data Centre (Forschungsdatenzentrum des Bundes, RDC), Wiesbaden 3/2009

## Appendix A2: Time Use Survey National Plans for the next wave of surveys 2008-2010.

Country	Foreseen schedule	Comment
Belgium (BE)	2010	Statistics Belgium collects TUS data and Vrije Universiteit Brussel analysis them. Next data collection will take place in 2010, analysis in 2011.
Bulgaria (BG)	2009/2010	Survey will be included into the National Programme for Statistical Surveys 2009/2010
Czech Republic (CZ)	Not before 2010	The implementation of TUS has not been assumed yet (no plan exists). There is lack of financial resources and of human capacity, the respondents' burden is still increasing and nor TUS, neither related activities is the priority of Czech Statistical Office in the area of social statistics.
Denmark (DK)	2008/2009	DTUC-Danish Time Use and Consumption Survey by Rockwool Foundation (Pilot ongoing)
Germany (DE)	No schedule	The next wave of the TUS survey is not yet organized and financed.
Estonia (EE)	2009/2010	EE is planning a TUS by 2009/2010
Ireland (IE)	Not before 2010	The National Development Plan Gender Equality Unit which was based in the Department of Justice, Equality and Law Reform engaged the ESRI to carry out a pilot light diary survey in 2005. The report is available to download at: <a href="http://www.justice.ie/en/JELR/Pages/Time_use_survey_report">http://www.justice.ie/en/JELR/Pages/Time_use_survey_report</a> Anonymised microdata is available through the Irish Social Science Data Archive (ISSDA) see <a href="http://www.ucd.ie/issda/dataset-info/timeuse.htm">http://www.ucd.ie/issda/dataset-info/timeuse.htm</a> However, with the exception of this 2005 light diary pilot and a small CSO HETUS pilot carried out in 1998 in one region of Ireland (Munster), to date no national time-use study has been carried out in Ireland. There are no definite plans to carry out a HETUS based or light diary survey at present.
Greece (EL)	No schedule	Lack of "economic and human resources"
Spain (ES)	2009/2010	ES plans a TUS in 2009/2010. Fieldwork between 10/2009 and 9/2010
France (FR)	September 2009- August 2010	
Italy (IT)	2008/2009	Fieldwork between February 2008 and January 2009.
Cyprus (CY)	Not before 2013	It is likely that TUS will not be launched before 2013
Latvia (LV)	Not before 2011	Difficult to have precise plan at this moment. Depends on financial resources.
Lithuania (LT)	Not before 2010	Difficult to have precise plan at this moment. Depends on financial resources
Luxembourg (LU)	Not before 2010/2011	We first have to integrate the Time Use Survey in our national plan. So it is difficult to have a precise plan for the moment (financing and human resources must be confirmed). It is likely that the survey will not be launched before 2010/2011.
Hungary (HU)	2009 or 2010	We are planning to organize a TUS during the next year (2009) or 2010. We are making only a pilot (on a 100 sample) during the summer of this year. Hopefully it will be successful, and we can use the results of this pilot to support the necessity of such a survey. It is not easy to find financial sources for a survey, which is not compulsory, in Hungary.
Malta (MT)	No updated information	The previous TUS survey was carried out in 2002
Netherlands (NL)	2010	Previous TUS surveys: 1. 2005 applying national methodology 2. 2006 according to HETUS guidelines In 2010 we will either apply our national methodology or the Hetus methodology. We have to weight out pros and cons of both methodologies before we will reach a decision on that.
Austria (AT)	2008/2009	Fieldwork from March 2008 until February 2009. The sample for TUS will be a subsample of the Austrian Microcensus. In addition to the Microcensus questionnaire persons in the selected households will be asked to fill in a diary for one day (aim: net sample of 8.000 persons being 10 years and older). There will be no special TUS questionnaire.
Poland (PL)	(2012) 2014	It is impossible for Poland to carry out TUS in 2010 because of Agricultural Census in 2010 and National Census in 2011. The most likely and convenient time for the Polish CSO is 2013/2014 but it will be considering 2012. Depends on financial resources.
Portugal (PT)	No schedule	Not planned. Depending on financial resources.
Romania (RO)	2009/2010?	Romanian National Institute of Statistics could not carry out TUS in 2008/2009 due to lack of financial and human resources. We provisional plan that the survey to be launched in 2009/2010 and that depends by financial and human resources
Slovenia (SI)	No schedule	Slovenia did not plan incorporate in the medium term plan financial resources and employees for the TUS. A TUS will not be conducted in the near future
Slovakia (SK)	Not before 2010	Previous TUS surveys: 2006 was carried out the Pilot project on TUS in accord with HETUS guidelines, edition 2004. A plan for regular TUS (not earlier than 2010) depends on obtaining of financial resources
Finland (FI)	2009/2010	Fieldwork between April 2009 and March 2010.
Sweden (SE)	2010 if resources available	Regarding the next round of the Time Use Surveys we have an ongoing discussion with the Ministry for Integration and Gender concerning financing. There is a great interest in taking part in the next round so we are optimistic about the outcome of the discussions.
United Kingdom (UK)	Full survey: not before 2013. Exploring lower cost	The UK carried out a light diary survey in 4 months of 2005. With regard to a HETUS survey there appears to be no prospect of funding a full survey in the current planning period (2008-2012), given other priorities and budgetary pressures. ONS is still exploring lower cost options

	<b>options (eg collecting basic data via an existing survey)</b>	(eg collecting basic data via an existing survey), but this will also depend on financial resources being found across government and ESRC.
<b>Croatia (HR)</b>	<b>No schedule</b>	National plan to be confirmed
<b>FYROM (MK)</b>	<b>2009</b>	According to the working plan 2008-2012, TUS will be carried out in 2009. Fieldwork will start on 1 January 2009.
<b>Turkey (TR)</b>	<b>2011</b>	The previous TUS survey was carried out in 2006 and the results published in July 2007. Turkish Statistical Institution, TURKSTAT, has planned to carry out TUS for 5-year-period in line with HETUS guidelines.
<b>Norway (NO)</b>	<b>2010</b>	
<b>Switzerland (CH)</b>	<b>Not before 2011</b>	No TUS is planned at the Swiss Federal Statistical Office (FSO). In the context of the new Statistical System on Households and Persons the possibility of a mini-TUS added to the omnibus survey is examined (light diary, CATI-interviews with precoded activities. It would be realised in 2011 at the earliest. The decision is still open.

Source: Federal Statistical Office 2009 (situation as of November 4, 2008)

## References:

- Akarro, R. (2008), The Impact of Time Use Differentials on Poverty levels in the Eastern and Northern Zones of Tanzania, in: *European Journal of Economics, Finance and Administrative Sciences*, Issue 13, 108-120
- Andorka, R. (1987). Time budgets and their uses. *Annual Review of Sociology*, 13, 149-164.
- Anxo, D. and P. Carlin (2004), Intra-family time allocation to housework: French evidence, in: *electronic International Journal of Time Use Research* ([www.eIJTUR.org](http://www.eIJTUR.org)), Vol. 1, 14-36
- Ås, D. (1978). Studies of time-use: Problems and prospects, in: *Acta Sociologica*, 21 (2), 125-141.
- Bediako, G. and J. Vanek (1999), Trial International Classification of Activities for Time Use Statistics, in: Merz, J. and M. Ehling (Eds.), *Time Use – Research, Data and Policy*, FFB-Book Series, Vol. 10, NOMOS publisher, 151-164
- Bevans, G.E. (1913), *How Working Men Spend Their Spare Time*, New York: Columbia University Press
- Bundesministerium für Arbeit und Soziales (2008), *Der 3. Armuts- und Reichtumsbericht der Bundesregierung*, Berlin (<http://www.bmas.de/coremedia/generator/26896/lebenslagen-in-deutschland-der-3.-armuts-und-reichtumsbericht-der-bundesregierung.html>)
- Bundesministerium für Familie, Senioren, Frauen und Jugend (2006), *Familie zwischen Flexibilität und Verlässlichkeit - Perspektiven für eine lebenslaufbezogene Familienpolitik*, Siebter Familienbericht, Deutscher Bundestag, Drucksache 16/1360
- Chadeau, A. (1985), *Measuring Household Activities – Some International Comparisons*, in: *Review on Income and Wealth*, 31, 237-254
- Cornelißen, W. (Hrsg., 2005): *Gender-Datenreport, 1. Datenreport zur Gleichstellung von Frauen und Männern in der Bundesrepublik Deutschland*. Im Auftrag des Bundesministeriums für Familie, Senioren, Frauen und Jugend. 2. Fassung, München.
- Cornelißen, W. and K. Blanke (2004), *Zeitverwendung von Mädchen und Jungen*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 160-174
- Dressel, Chr., Cornelißen, W. and K. Wol (2005), *Vereinbarkeit von Familie und Beruf*, in: Cornelißen, Waltraud (Hrsg., 2005): *Gender-Datenreport, 1. Datenreport zur Gleichstellung von Frauen und Männern in der Bundesrepublik Deutschland*. Im Auftrag des Bundesministeriums für Familie, enioren, Frauen und Jugend. 2. Fassung, München. Kapitel 5, S.278-356, <http://www.bmfsfj.de/Publikationen/genderreport/root.html>
- Ehling, M. and J. Merz (Eds.) (2002), *Neue Technologien in der Umfrageforschung – Anwendungen bei der Erhebung von Zeitverwendung (New Technologies in Survey Research – Applications for Time Use Studies)*, FFB-Schriftenreihe Band 14, Nomos Verlagsgesellschaft, Baden-Baden, 2002
- Ehling, M., Merz, J. et al. (2001), *Zeitbudget in Deutschland – Erfahrungsberichte der Wissenschaft*, Spektrum der Bundesstatistik, Bd. 17, hrsg. Vom Statistischen Bundesamt, Wiesbaden
- Engstler, H., Mennin, S., Hoffmann, E. and Cl. Tesch-Römer (2004), *Die Zeitverwendung älterer Menschen*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 216-246
- EUROSTAT (2009), *Harmonised European Time Use Surveys – 2008 Guidelines*, EUROSTAT Methodologies and Working papers, KS-RA-08-014-EN.pdf, [http://epp.EUROSTAT.ec.europa.eu/portal/page?\\_pageid=1073,-46587259&\\_dad=portal&\\_schema=PORTAL&p\\_product\\_code=KS-RA-08-014](http://epp.EUROSTAT.ec.europa.eu/portal/page?_pageid=1073,-46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-RA-08-014)
- EUROSTAT, Task Force Household Satellite Accounts (2003), *Household Production and Consumption*, Proposal for a Methodology of the Household Satellite Accounts, Task Force Report for EUROSTAT, Division E1
- Fahr, R. (2005), *Loafing or Learning? The Demand for Informal Education*, in: *European Economic Review*, Vol. 49, 1, 75-98
- Fendrich, S. and M. Schilling (2004), *Informelle Betreuungssettings in der ausserfamilialen Kinderbetreuung*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 131-148
- Folbre, N. (2009), *Inequality, Consumption, and Time Use*, in: Nolan, B. and T.M. Smeeding (eds.), *The Oxford Handbook of Economic Inequality*. Wiemer Salverda, Chapter 14
- Fritz, I. und W. Klingler (2006), *Medienzeitbudgets und Tagesablaufverhalten*, in: *Media Perspektiven* 4/2006, [http://www.media-perspektiven.de/uploads/tx\\_mppublications/04-2006\\_Fritz.pdf](http://www.media-perspektiven.de/uploads/tx_mppublications/04-2006_Fritz.pdf), Stand am 17. November 2007
- Gabriel, O., Trüdinger, E.-M. and K. Völkl (2004), *Bürgerengagement in Form von ehrenamtlicher Tätigkeit und sozialen Hilfsleistungen*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 337-356
- Gershuny, J. (1999): *Informal Economic Activity and Time Use Evidence*, in: Merz, J. und M. Ehling (Hrsg.): *Time Use – Research, Data and Policy*, 13-26
- Gershuny, J. I. (1995). Time budget research in Europe. *Statistics in Transition*, 2 (4), 529-531.
- Gershuny, J., Fisher, K., Jones, S. und A. Gauthier (2000), *A Multinational Longitudinal Time-Use Data Archive*, in: Gershuny, J., *Changing Times: Work and Leisure in Postindustrial Society*, Oxford University Press, Oxford
- Gershuny, Jonathan (2001), *Time Use Research Methods*, in: Baltes, P. und N. Smelser (Hrsg.), *International Encyclopedia of the Social & Behavioral Sciences*, Elsevier Science Limited, Amsterdam
- Gershuny, J. und O. Sullivan (1998), *The Sociological Uses of Time-Use Diary Analysis*, in: *European Sociological Review*, 14(1), 69-85
- Gille, M. and J. Marbach (2004), *Arbeitsteilung von Paaren und ihre Belastung mit Zeitstress*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 86-113
- Goldschmidt-Clermont, L. (1993), *Monetary Valuation of Non-Market Productive Time - Methodological Considerations*, in: *Review of Income and Wealth*, 4, 419-433
- Guryan, J., Hurst, E. and M.S. Kearney (2008), *Parental Education and Parental Time With Children*, NBER Working Paper No. 13993, New York, <http://www.nber.org/papers/w13993>
- Gwozdz, W., Hufnagel, R., Seel, B. and L. Wahrig (2006), *Messung der Entwicklung der geschlechtsspezifischen Arbeitsteilung mit den Daten der Zeitbudgeterhebungen 1991/92 und 2001/02*, in: *Hauswirtschaft und Wissenschaft*, Heft 1, 22-28
- Hamermesh, D. (2002), *Timing, togetherness and time windfalls*, in: *Journal of Population Economics*, 15, 321-325

- Hamermesh, D.S. and G.A. Pfann (2005), *The Economics of Time Use*, North-Holland
- Harms, T. and J. Gershuny (2009), *Time Budgets and Time Use*, German Council for Social and Economic Data (Rat für Sozial- und Wirtschaftsdaten) Working Paper No. 45, Berlin
- Harvey, A. (2004), Welcome Address of the IATUR President: eIJTUR and Time-Use: Past, Present and Future, in: electronic International Journal of Time Use Research (eIJTUR.org), Vol.1-1, I-IV
- Harvey, A. (2006), *Nonmarket Production and Historical Time-Use Data: Potential and Issues*, Yale Program on Nonmarket Accounts: A Project on Assessing Time Use Survey Datasets, Halifax, Canada
- Harvey, A. (2009), *Halifax Regional Space-Time Activity Research (STAR) Project - A GPS-Assisted Household Time-Use Survey*, St. Mary's University, Halifax, Canada, [www.stmarys.ca/partners/turp/main.html](http://www.stmarys.ca/partners/turp/main.html),
- Harvey, A. S. (1999): *Time Use Research: The Roots to the Future*, in: Merz, J. und M. Ehling (Hrsg.), *Time Use – Research, Data and Policy*, FFB-Schriftenreihe Band 10, Nomos Verlagsgesellschaft, Baden-Baden, 123-150
- Harvey, A.S., Szalai, A., Elliott, D.H., Stone, P.J. und S. Clark (1984), *Time Budget Research: An ISSC Workbook in Comparative Analysis*, Campus, New York
- Harvey, A.S., Szalai, A., Elliott, D.H., Stone, P.J. und S. Clark (1984), *Time Budget Research: An ISSC Workbook in Comparative Analysis*, Campus, New York
- Hoffmann, E. and A. Mata (1999), *Measuring Working Time: An Alternative Approach to Classifying Time Use*, in: Merz, J. und M. Ehling (Eds.), *Time Use – Research, Data and Policy*, FFB-Book Series, Vol. 10, NOMOS publisher, 166-177
- Holz, E. (2004), *Poverty and family life: Time use of families with and without poverty risk*, Proceedings of the Annual IATUR Conference 2004, International Association for Time Use Research – IATUR and Italian National Statistical Institute – ISTAT, Rome, Italy
- Institut für Sozialforschung und Gesellschaftspolitik (ISG), Köln (Ed.) (2004), *Aspekte der Armuts- und Reichtumsberichterstattung: Reichtum und Eliten – Haushaltsproduktion und Armutsprävention. 2. Wissenschaftliches Kolloquium am 8. und 9. Oktober 2003 in Rüdesheim am Rhein. Veranstaltung des Bundesministeriums für Gesundheit und Soziale Sicherung. Durchführung und Dokumentation: Institut für Sozialforschung und Gesellschaftspolitik*, [http://www.isg-institut.de/index.php?b=single&id\\_B=6&id\\_UB=8&id\\_Nummer=83](http://www.isg-institut.de/index.php?b=single&id_B=6&id_UB=8&id_Nummer=83)
- Ironmonger, D. (2001), *Household Production and the Household Economy*, Department of Economics Research Paper No. 759, University of Melbourne, Australia
- Jäckel, M. and S. Wollscheid (2004), *Mediennutzung im Tagesverlauf: Ausweitung des Angebots und Strukturen der Zeitverwendung*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 373-411
- Jäckel, M. and S. Wollscheid. *Time Is Money and Money Needs Time: A secondary analysis of time-budget data in Germany*. In: *Journal of Leisure Research*, 39(1), 86-108
- Jacobsen, J. und Kooreman, P., 2004, *Timing Constraints and the Allocation of Time: The Effect of the Changing Shopping Hours Regulations in the Netherlands*, IZA Discussion Paper No. 130
- Jahoda, M., Lazarsfeld, P. F. and Zeisel, H. (1933), *Marienthal: The Sociography of an Unemployed Community – Translated by the authors with John Reginald and Thomas Elsaesser*. Chicago 1971: Idine-Atherton.
- Jahoda, M., Lazarsfeld, P. F. & Zeisel, H. (1960), *Die Arbeitslosen von Marienthal. Ein soziographischer Versuch mit einem Anhang zur Geschichte der Soziographie*. (Bd. 2 der Reihe "Klassiker der Umfrageforschung"). Allensbach: Verlag für Demoskopie.
- Juster, F. Th. (1999), *The Future of Research on Time Use*, Merz, J. und M. Ehling (eds.), *Time Use – Research, Data and Policy*, FFB-Schriftenreihe Band 10, Nomos Verlagsgesellschaft, Baden-Baden, 551-560
- Juster, F.Th. and F.P. Stafford (1991), *The allocation of time: empirical findings, behavioural models and problems of measurement*, *Journal of Economic Literature*, Vol. 29, 471-522
- Juster, F.Th. and F.P. Stafford (1991), *The allocation of time: empirical findings, behavioural models and problems of measurement*, *Journal of Economic Literature*, Vol. 29, 471-522
- Kahle, I. (2004), *Alleinerziehende im Spannungsfeld zwischen Beruf und Familie*, in: Statistisches Bundesamt (Hrsg.) (2004), *Alltag in Deutschland - Analysen zur Zeitverwendung*, Wiesbaden, 175-193
- Keall, M.D. and M.G. Baker (2008), *Travel Survey Data to Estimate Time Spent at Important Settings*, in: electronic International Journal of Time Use Research, Vol. 5, time pieces, 127-129
- Kettschau, I., Hufnagel, R. und E. Holz (2004): *Lebensgestaltung auf Haushaltsebene – Verknuepfung zwischen Armutsforschung und Zeitbudgetdaten. Expertise für das Bundesministerium für Familie, Senioren, Frauen und Jugend, Beitrag zum Berichtskapitel fuer den 2. Armuts- und Reichtumsbericht der Bundesregierung. Fachhochschule Muenster, Fachbereich Oecotrophologie, Muenster*.
- Kleimann, M. and T. Mölle (2008). *The Logs of Eliza and Other Media Stories. Behavioral and Developmental Effects of a School Based Media Education Program - Berlin Longitudinal Study Media*. *International Journal of Behavioral Development*, 32(6), Supplement 2 (54), 55-59
- Klevmarken, A. (1999), *Microeconomic Analysis of Time Use Data: Did We Reach the Promised Land?*, Merz, J. und M. Ehling (eds.), *Time Use – Research, Data and Policy*, FFB-Schriftenreihe Band 10, Nomos Verlagsgesellschaft, Baden-Baden, 423-456
- Klevmarken, A. (1999), *Microeconomic Analysis of Time Use Data: Did We Reach the Promised Land?*, Merz, J. und M. Ehling (eds.), *Time Use – Research, Data and Policy*, FFB-Schriftenreihe Band 10, Nomos Verlagsgesellschaft, Baden-Baden, 423-456
- Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik (Ed.) (2001), *Wege zu einer besseren informationellen Infrastruktur*, Gutachten der vom Bundesministerium für Bildung und Forschung eingesetzten Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik, Nomos Verlag, Baden-Baden
- Körner, M.A., Nimmergut, Nökel, J. und S. Rohloff ((2008), *Die Dauerstichprobe befragungsbereiter Haushalte – Die neue Auswahlgrundlage für freiwillige Haushaltsbefragungen*, in: *Wirtschaft und Statistik*, 5/2008, 451-487
- Kramer, C. (2004), *Zeitverwendung*, in: Statistisches Bundesamt (Hrsg.), *Datenreport 2004*, 545-554
- Kramer, C. (2005) *Verkehrsverhalten, Wegezeiten und Mobilität*, Expertise für den Siebten Familienbericht der Bundesregierung, Berlin

- Kramer, C. (2005), Zeit für Mobilität - Räumliche Disparitäten der individuellen Zeitverwendung für Mobilität in Deutschland, Reihe Erdkundliches Wissen, Band 138, Franz Steiner Verlag, Stuttgart
- Landefeld, J.S. and S. Culla (2000), Accounting for Nonmarket Household Production within a National Accounts Framework, in: Review of Income and Wealth, 46,3
- Lindqvist, M. (2001), The Finnish System of Official Social Surveys, Statistics Finland, Official Social Surveys in Europe, edited by F. Kraus and G. Schmaus, EuReporting Working Paper No. 25, Mannheim
- Meier, U. Küster, Chr. and U. Zander (2004), Alles wie gehabt? – Geschlechtsspezifische Arbeitsteilung und Mahlzeitenmuster im Zeitvergleich, in: Statistisches Bundesamt (Hrsg.) (2004), Alltag in Deutschland - Analysen zur Zeitverwendung., Wiesbaden, 114-130
- Merz, J. "Time use in gainful employment and household production - Dynamic microanalyses with paneldata" (Merz, Lang and Rauberger), which was supported by the German National Science Foundation (DFG).
- Merz, J. (1990): Zur Notwendigkeit und Nutzung von Zeitbudgetdaten in der Sozialökonomie, in: R. v. Schweitzer; M. Ehling; D. Schäfer (Hrsg.): Zeitbudgeterhebungen. Ziele, Methoden und neue Konzepte, Stuttgart, 93- 106
- Merz, J. (1999); Zur Dynamik markt- und nichtmarktmäßigen Arbeitsangebots: Zeitverwendung verheirateter Frauen in Beruf und Haushalt - Eine Panelanalyse, in: Hujer, R., Schneider, H. and W. Zapf (Hg.), 1992, Herausforderungen an den Wohlfahrtsstaat im strukturellen Wandel, Campus Verlag, Reihe Wirtschaftswissenschaften, Bd. 23, Frankfurt/New York, 343-378
- Merz, J. (2001), Informationsfeld Zeitverwendung, in: Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik (Ed.), Wege zu einer besseren informationellen Infrastruktur, Gutachten der vom Bundesministerium für Bildung und Forschung eingesetzten Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik, Nomos Verlag, Baden-Baden
- Merz, J. (2002), Time Use Research and Time Use Data – Actual Topics and New Frontiers, in: Ehling, M. and J. Merz (Eds.), Neue Technologien in der Umfrageforschung – Anwendungen bei der Erhebung von Zeitverwendung (New Technologies in Survey Research – Applications for Time Use Studies), FFB-Schriftenreihe Band 14, Nomos Verlagsgesellschaft, Baden-Baden, 3-19
- Merz, J. (2009), Zeitverwendungsforschung und Mediennutzung, Gutachten für das Zweite Deutsche Fernsehen (ZDF), FFB-Diskussionspapier Nr. 75, Leuphana Universität Lüneburg, Lüneburg
- Merz, J. and D. Burgert (2004), Arbeitszeitarangements – Neue Ergebnisse aus der Zeitbudgeterhebung 2001/02 im Zeitvergleich zu 1991/92, in: Statistisches Bundesamt (Ed.), Alltag in Deutschland – Analysen zur Zeitverwendung, FORUM Band 43, Wiesbaden, 304-336, 2004
- Merz, J. and M. Ehling. (Eds. 1999), Time Use – Research, Data and Policy, FFB-Schriftenreihe Band 10, Nomos Verlagsanstalt, Baden-Baden
- Merz, J. and Paul Böhm (2005), Arbeitszeitarangements und Entlohnung – Ein Treatment-Effects-Ansatz für Freiberufler, Unternehmer und abhängig Beschäftigte, in: Reinhard Schulte (Ed.), Ergebnisse der Mittelstandsforschung, Merz, J., Schulte, R. and J. Wagner (Series Eds.), Entrepreneurship, Professions, Small Business Economics, CREPS-Schriftenreihe Vol. 2, Lit-Verlag, Münster, 237-264, 2005
- Merz, J. and T. Rathjen (2009), Time and Economic Poverty – Interdependent Multidimensional Poverty with the German Time Use Survey 2001/02, Manuscript, Research Institute on Professions (FFB), University of Lüneburg, Lüneburg
- Merz, J., Böhm, P. and D. Burgert (2004), Timing, Fragmentation of Work and Income Inequality – An Earnings Treatment Effects Approach, FFB-Discussion Paper No. 47, Department of Economics and Social Sciences, University of Lüneburg, Lüneburg
- Merz, J., Hanglberger, D. and R. Rucha (2009), The Timing of Daily Demand for Goods and Services – Multivariate Probit Estimates and Microsimulation Results for an Aged Population with German Time Use Diary Data, Research Institute on Professions (Forschungsinstitut Freie Berufe (FFB)) Discussion Paper No. 75, Department of Economics, Behavioural and Law Sciences, Leuphana University Lüneburg
- Mückenberger, U. (2008), Zeitpolitik in der Metropolregion Hamburg, Projektantrag „Wissenschaftliche Begleitung des Projektverbunds ‚Zeitpolitik in der Metropolregion Hamburg‘“, Hamburg
- Niemi, I. (1993), Systematic error in behavioral measurement: Comparing results from interview and time budget studies, in: Social Indicators Research, Vol. 30, No. 2-3, 229-244
- Pember Reeves, M. (1913), Round About a Pound a Week, Bell, London; Neue Auflage: Verlag Virago 1990
- Pinl, Cl. (2004), Wo bleibt die Zeit? Die Zeitbudgeterhebung 2001/02 des Statistischen Bundesamts. In: Aus Politik und Zeitgeschichte, Nr. 31-32, [http://www.bpb.de/publikationen/CRWJ8M,0,Wo\\_bleibt\\_die\\_Zeit.html](http://www.bpb.de/publikationen/CRWJ8M,0,Wo_bleibt_die_Zeit.html)
- Riedinger, M. (2009), Experience Sampling, Federal Ministry of Education and Research, German Council of Social and Economic Data Working Paper No. 62, Berlin
- Riedinger, M. et al. (2009), Seeking Pleasure and Seeking Pain, *Psychological Science* (forthcoming).
- Robinson, J.P. (1985), The validity and reliability of diaries versus alternative time use measures, in: Juster, F.T. and F.P. Stafford, Time, Goods and Well-Being, Ann Arbor, 33-63
- Robinson, J.P. and G. Godbey (1997), Time for Life – The Surprising Ways Americans Use Their Time, Pennsylvania State University Press, University Park
- Rydenstam, K. (1999), The EUROSTAT Project on Harmonising Time Use Statistics, in: Merz, J. and M. Ehling (Eds.), Time Use – Research, Data and Policy, FFB-Book Series, Vol. 10, NOMOS publisher, 35-48
- Rydenstam, K. (2007), The Harmonised European Time Use Database and the Table Generating Tool, in: electronic International Journal of Time Use Research ([www.eIJTUR.org](http://www.eIJTUR.org)), Vol. 4-1, 118-119
- Schäfer, D. (2004), Unbezahlte Arbeit und Haushaltsproduktion im Zeitvergleich, in: Statistisches Bundesamt (Hrsg.) (2004), Alltag in Deutschland - Analysen zur Zeitverwendung., Wiesbaden, 247-273
- Schäffer, S.M. (2003), Die Zeitverwendung von Konsumenten - Implikationen für das Dienstleistungsmarketing, Gabler-Verlag, Wiesbaden
- Schriftreihe Media Perspektiven (2006), Massenkommunikation VII, Eine Langzeitstudie zur Mediennutzung und Medienbewertung 1964 - 2005, Nomos Verlagsgesellschaft, Baden-Baden
- Schulz, F. and D. Grunow (2007), Time-diary versus time-estimation data. A comparison of two different methods of measuring the time spent on housework, in: Zeitschrift für Familienforschung, 19. Jahrg., Heft 1/2007, S. 106-128

- Sellach, B., Enders-Dragässer, U. and A. Libuda-Köster (2004), Geschlechtsspezifische Besonderheiten der Zeitverwendung – Zeitstrukturierung im theoretischen Konzept des Lebenslagen-Ansatzes, in: Statistisches Bundesamt (Hrsg.) (2004), Alltag in Deutschland - Analysen zur Zeitverwendung., Wiesbaden, 67-85
- Stäglin, R. and J. Schintke (2003), Monetäre, physische und Zeit-Input-Output-Tabellen, Teil 2: Analytische Auswertung, Sozio-ökonomisches Berichtssystem für eine nachhaltige Gesellschaft, Bd. 2, <http://www-ec.destatis.de/csp/shop/sfg/vollanzeige.csp?ID=1011818>
- Stahmer, C. (2003), Aufbau eines sozio-ökonomischen Berichtssystems für eine nachhaltige Gesellschaft, in: Statistisches Bundesamt (Ed.), Sozialer Wandel – Daten, Analysen, Gesamtrechnungen, Band 41 der Schriftenreihe „Forum der Bundesstatistik“, Wiesbaden
- Stahmer, C. and A. Schaffer (2004), Time Pattern in a Social Accounting Framework, Paper prepared for International Association for Research in Income and Wealth - IARIW, 28th General Conference, August 22-28, 2004, Cork, Ireland, <http://www.iariw.org/papers/2004/axel.pdf>
- Stahmer, C., I. Mecke and I. Herrchen, Inge (2003), Zeit für Kinder. Betreuung und Ausbildung von Kindern und Jugendlichen, Sozio-ökonomisches Berichtssystem für eine nachhaltige Gesellschaft, Bd. 3,
- Statistisches Bundesamt (2004), Alltag in Deutschland - Analysen zur Zeitverwendung, Forum der Bundesstatistik, Wiesbaden
- Statistisches Bundesamt (Ed.) (2006a), Compass 2001/02 Time Use Survey: Publications, Links and Prints incl. Data Files and Research Facilities
- Statistisches Bundesamt (Hrsg., 2006b): Zeitbudgets - Tabellenband I, Zeitbudgeterhebung: Aktivitäten in Stunden und Minuten nach Geschlecht, Alter und Haushaltstyp 2001/02, Wiesbaden, <https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1019589>
- Statistisches Bundesamt (Hrsg., 2008): Statistisches Jahrbuch 2008, Tabelle 7 Kultur, Freizeit, Sport, 7.15 Zeitaufwand pro Woche für Unterhaltung und Kultur 2001/2002 nach Geschlecht und Alter, S. 185. <https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1022845>
- Szalai, A. et al. (Ed. 1972). The use of time: Daily activities of urban and suburban populations in twelve countries, The Hague Mouton, The Netherlands
- Torres, A., Brites, R., Haas, B. and N. Steiber (2007), First European Quality of Life Survey: Time use and work-life options over the life course, European Foundation for the Improvement of Living and Working Conditions, Dublin, Ireland [www.eurofound.europa.eu](http://www.eurofound.europa.eu)
- UNIFEM United Nations Development Funds for Women 2008, Who Answers to Women? Progress of the World's Women 2008/2009 – Gender & Accountability (<http://www.unifem.org/progress/2008/>)
- US Department of Agriculture (2009), American Time Use Survey: Food & Eating Module, <http://www.ers.usda.gov/emphases/healthy/atus/questions.htm>
- Weick, S. (2004) (2004), Lebensbedingungen, Lebensqualität und Zeitverwendung, in: Statistisches Bundesamt (Hrsg.) (2004), Alltag in Deutschland - Analysen zur Zeitverwendung., Wiesbaden, 412-430
- Wilhelm, R. and Chr. Wingerter (2004), Lebenslanges Lernen – Statistischer Ansatz und empirische Ergebnisse der Zeitbudgeterhebung 2001/2002, in: Statistisches Bundesamt (Hrsg.) (2004), Alltag in Deutschland - Analysen zur Zeitverwendung., Wiesbaden, 431-456
- Wilson, C. (1999), Sequence Alignment Analysis of Daily Activities, Merz, J. und M. Ehling (eds.), Time Use – Research, Data and Policy, FFB-Schriftenreihe Band 10, Nomos Verlagsgesellschaft, Baden-Baden, 505-516
- Wilson, C. (2001), Activity patterns of Canadian women: An application of ClustalG sequence alignment software, Canada Mortgage and Housing Corporation, Paper 01-2292, Ottawa, Canada